REMARKS

Claims 36-41, 57, and 63-64 are pending. Claims 36, 39, and 57 have been amended. Support for these amendments can be found in the specification on, for example page 5 and page 18. No new matter has been added.

New claims 63-64 have been added. Support for the new claims can be found, for example, on pages 5 and pages 29-30. No new matter has been added.

Rejection of Claims under 35 U.S.C. § 103

Claims 36-41 and 57 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Newswanger, U.S. Patent No. 5,191,449. The applicants respectfully traverse in part this rejection.

Newswanger neither teaches nor suggests an apparatus for printing holographic stereograms including:

> an object beam unit, including a removable band-limited diffuser, for displaying a rendered image and for conditioning the object beam with the rendered image to interfere with the reference beam at a chosen elemental hologram, *wherein the removable band-limited diffuser includes a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction*;
>
> a computer programmed to control the interference of the object beam and the reference beam and the delivery of the rendered image to the object beam unit.

as required by independent claim 36 as amended.

Regarding the claimed "an object beam unit, including a removable band-limited diffuser," the Examiner refers to a number of components shown in **Figure 4** including frosted screen **44**. The applicants respectfully submit that Newswanger's frosted screen **44** is not a *band-limited* diffuser. Moreover, Newswanger does not teach or suggest that frosted screen **44** is removable. The Examiner goes on to state that "strictly speaking, said diffuser taught by Newswanger is band-limited, inasmuch as said diffuser would not efficiently pass, for the sake of example, radiation in the infrared band of the electromagnetic spectrum . . . ." Office Action of December 31, 2002, p. 4, ¶ 1. The

applicants respectfully disagree. Newswanger simply describes element **44** as a "frosted screen" and thus there is no support in Newswanger for the Examiner's conclusion.

If it is the Examiner's position that Newswanger's frosted screen **44** inherently teaches a band-limited diffuser, the applicants note that MPEP § 2112 makes clear the fact that the Examiner must provide rationale or evidence tending to show inherency:

> "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy,* 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original)

The applicants respectfully submit that the Examiner has provided no such evidence or rationale tending to show inherency. If instead it is the Examiner's position that it is well known that a frosted screen like Newswanger's frosted screen **44** is a band-limited diffuser, then the applicants respectfully submit that the information the Examiner asserts to be well known is not. Regarding reliance on "well known" prior art, MPEP § 2144.03 states:

> If justified, the examiner should not be obliged to spend time to produce documentary proof. If the knowledge is of such notorious character that official notice can be taken, it is sufficient so to state. *In re Malcolm*, 129 F.2d 529, 54 USPQ 235 (CCPA 1942). If the applicant traverses such an assertion the examiner should cite a reference in support of his or her position.

Thus, in traversing the Examiner's assertion, the applicants respectfully request that the Examiner cite a reference in support of his position. If it is the Examiner's position that the rejection is based on his personal knowledge, the applicants request that the facts be supported by an affidavit from the Examiner.

Nevertheless, and in the interest of advancing prosecution of the present application, the applicants have amended claim 36 to clarify the meaning of band-limited diffuser, as presented in the specification, i.e., that the removable band-limited diffuser includes a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction.

With respect to the claimed "a computer programmed to control the interference of the object beam and the reference beam and the delivery of the rendered image to the object beam unit," the Examiner refers to column 6, lines 41-44 of Newswanger which state in relevant part:

> 2. The holographic stereogram display of claim 1 wherein the plurality of image pairs are of related subject matter, whereby displaying said image pairs in a sequence controlled by the control of said light sources will create an animated holographic stereogram display. (Column 6, lines 42-46)

While Newswanger may teach displaying image pairs (as part of a holographic *display*) in a sequence controlled by the control of the light sources used, he does not teach or suggest a *computer programmed to control the interference of the object beam and the reference beam and the delivery of the rendered image to the object beam unit.*

In his Office Action of December 31, 2002, p. 5, ¶1, the Examiner goes on to note that "such teaching is notoriously old and well-known in the holographic art." Referring to the portion of the MPEP previously cited above, the applicants traverse the Examiner's assertion and respectfully request that the Examiner cite a reference in support of his position. If it is the Examiner's position that the rejection is based on his personal knowledge, the applicants request that the facts be supported by an affidavit from the Examiner.

Accordingly, the applicants respectfully submit that independent claim 36 is allowable over Newswanger. Claims 37, 38, 63, and 64 depend from claim 36 and are allowable for at least this reason.

Newswanger neither teaches nor suggests an apparatus for printing holographic stereograms including:

> a voxel-control lens located in the path of the object beam and proximate to the holographic recording material, *the voxel control lens being capable of varying the size of at least one voxel and being capable of making the rendered image displayed by the object beam unit as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material*; and

> a computer programmed to control the interference of the object beam and the reference beam and the delivery of the rendered image to the object beam unit,

as required by independent claim 39 and generally required by independent claim 57.

Regarding the claimed "voxel-control lens," the Examiner refers to Newswanger's lens **46**. The applicants respectfully submit that Newswanger's lens **46** is not a *voxel-control* lens being capable of varying the size of at least one voxel and being capable of making the rendered image displayed by the object beam unit as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material.

Accordingly, the applicants respectfully submit that independent claims 39 and 57 are allowable over Newswanger. Claims 40 and 41 depend from claim 39 and are allowable for at least this reason.

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the examiner is requested to telephone the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on June 2, 2003.

Attorney for Applicant(s) — Date of Signature: 6/2/03

Respectfully submitted,

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Appendix: Version with Markings to Show Changes Made

In the Claims

Please substitute the following claims for the pending claims with the same number:

36. (Amended) An apparatus for printing holographic stereograms, comprising:
a light source that produces a coherent beam;
a beam splitter that splits the coherent beam into an object beam and a reference beam;
a material holder holding a holographic recording material having elemental holograms;
an object beam unit, including a removable band-limited diffuser, for displaying a rendered image and for conditioning the object beam with the rendered image to interfere with the reference beam at a chosen elemental hologram, wherein the removable band-limited diffuser includes a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction;
a removable masking plate located in the path of the reference beam and proximate to the holographic recording material; and
a computer programmed to control the interference of the object beam and the reference beam and the delivery of the rendered image to the object beam unit.

63. (New) The apparatus of claim 36 wherein the removable band-limited diffuser is specifically designed for the wavelength of the light source.

64. (New) The apparatus of claim 36 wherein each of the removable band-limited diffuser and the removable masking plate are located in respective positions such that the removable band-limited diffuser can be replaced with a second band-limited diffuser and the removable masking plate can be replaced with a second removable masking plate, wherein the second band-limited diffuser and the second removable

masking plate allow recording of at least one of a larger elemental hologram, a smaller elemental hologram and a differently shaped elemental hologram.

39. (Amended) An apparatus for printing holographic stereograms, comprising:
a light source that produces a coherent beam;
a beam splitter that splits the coherent beam into an object beam and a reference beam;
a material holder holding a holographic recording material having elemental holograms;
an object beam unit for displaying a rendered image and for conditioning the object beam with the rendered image to interfere with the reference beam at a chosen elemental hologram;
a voxel-control lens located in the path of the object beam and proximate to the holographic recording material, the voxel control ~~lens being~~ capable of varying the size of at least one voxel and being capable of making the rendered image displayed by the object beam unit as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material; and
a computer programmed to control the interference of the object beam and the reference beam and the delivery of the rendered image to the object beam unit.

112, 2nd ¶

57. (Amended) A method of printing a holographic stereogram with elemental holograms, comprising the steps of:
selecting an elemental hologram;
generating a coherent light beam;
splitting the beam into an object beam and a reference beam;
rendering an image;
conditioning the object beam with the rendered image, the conditioning of the object beam including the step of passing the object beam though a voxel-control lens, the voxel control lens being capable of varying the size of at

least one voxel and being capable of making the rendered image as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material;

interfering the conditioned object beam with the reference beam at the selected elemental hologram.